

CLAIMS

1. A cellulase having (1) an amino acid sequence in which a 162nd amino acid and/or a 166th amino acid in the amino acid sequence of SEQ ID NO: 1 are substituted, or (2) an amino acid sequence in which one or plural amino acids are added to or deleted from the N-terminus of the amino acid sequence (1).
2. The cellulase according to claim 1 having the amino acid sequence of SEQ ID NO: 3.
3. The cellulase according to claim 1, wherein the amino acid at the 166th position is substituted with glutamic acid or aspartic acid.
4. The cellulase according to claim 3 having the amino acid sequence of SEQ ID NO: 4.
5. A cellulase having the amino acid sequence of SEQ ID NO: 5.
6. A polynucleotide encoding the cellulase according to any one of claims 1 to 5.
7. An expression vector comprising the polynucleotide according to claim 6.
8. A host cell transformed with the expression vector according to claim 7.
9. A process for producing the cellulase according to any one of claims 1 to 5, comprising the steps of:
cultivating the host cell according to claim 8, and
collecting the cellulase from the host cell and/or culture obtained by the cultivation.
10. A cellulase preparation comprising the cellulase according to any one of claims 1 to 5.
11. A washing composition comprising the cellulase according to any one of claims 1 to 5 or the cellulase preparation according to claim 10.
12. A method of treating a cellulose-containing fabric,

comprising the step of bringing the cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

13. A method of reducing fuzzing of a cellulose-containing fabric or reducing a rate of the formation of fuzz, comprising the step of bringing the cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

14. A method of reducing weight to improve the touch and appearance of a cellulose-containing fabric, comprising the step of bringing the cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

15. A method of color clarification of a colored cellulose-containing fabric, comprising the step of bringing the colored cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

16. A method of providing a localized color variation to colored cellulose-containing fabric, comprising the step of bringing the colored cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

17. A method of reducing stiffness of a cellulose-containing fabric or reducing a rate of the formation of stiffness, comprising the step of bringing the cellulose-containing fabric into contact with the cellulase according to any one of claims 1 to 5, the cellulase preparation according to claim 10, or the washing composition according to claim 11.

18. The method according to any one of claims 12 to 17, wherein the treatment of the fabric is carried out by soaking, washing, or rinsing the fabric.

19. A method of deinking waste paper, comprising the step of treating the waste paper with the cellulase according to any one of claims 1 to 5 or the cellulase preparation according to claim 10 together with a deinking agent.

20. A method of improving a freeness of paper pulp, comprising the step of treating the paper pulp with the cellulase according to any one of claims 1 to 5 or the cellulase preparation according to claim 10.

21. A method of improving a digestibility of animal feed, comprising the step of treating a cellulose-containing fabric with the cellulase according to any one of claims 1 to 5 or the cellulase preparation according to claim 10.